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ABSTRACT

Cognitive and conditioning models of cue-controlled relaxation as well as the relative efficacy of applied relaxation and cue-controlled relaxation in alleviating test anxiety were investigated. Test anxious subjects (N=18) received either applied relaxation, cognitive cue-controlled relaxation, or conditioned cue-controlled relaxation. Between group analyses revealed no differences among the conditions on any of the behavioral and self-report measures thus supporting the conditioning model of outcome effects. Within group comparisons indicated highly significant pre-post changes, with applied relaxation subjects demonstrating the greatest improvement. (Author)

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Effectiveness of Coping Skills
Training in the Management of Test Anxiety

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EFFECTIVENESS OF COPING SKILLS TRAINING IN THE MANAGEMENT OF TEST ANXIETY

Until recently, systematic desensitization and in vivo modeling procedures have been the typical treatments of choice for anxiety reactions. Despite the efficacy of these interventions, there are a number of shortcomings associated with each technique which may detract from its effectiveness or limit its application. In systematic desensitization, for example, problems arise when the client is unable to achieve or maintain vivid imagery. With a client suffering from multiple anxiety reactions, the construction and working through of the hierarchy items is often very tedious and time consuming. In vivo modeling techniques avoid the difficulties associated with imagery, but they do require considerable amounts of therapist time and may be inappropriate or unfeasible for certain anxieties, such as test or pervasive anxiety. When resources and environmental constraints render in vivo modeling inappropriate, covert modeling techniques may be used. However, as with desensitization, imagery related difficulties may detract from their effectiveness.

Perhaps the major shortcoming associated with both desensitization and modeling procedures is that treatment effects do not appreciably generalize to non-target behaviors or non-target situations (Liberman & Smith, 1972). It is apparent that alternative anxiety reduction techniques are needed. In an attempt to overcome these limitations, the area of anxiety management has shifted its emphasis from instilling discrete, situation-specific responses to teaching coping skills which can be applied across situations and problems.

A number of coping skills training procedures for the management of anxiety have been developed. Among these are: anxiety management training (Súinn & Richardson, 1971), applied relaxation (Deffenbacher, 1976), cue-controlled relaxation (Russell & Sipich, 1973), self-control desensitization (Goldfried, 1971), and self-statement modification (Meichenbaum & Turk, 1976). The vast majority of the problems associated with imagery and hierarchy construction are not usually encountered in coping skills.

Thus the techniques are procedurally more feasible than systematic desensitization and in vivo modeling, and generally require less time for completion of treatment. A fundamental assumption shared by all coping skills training techniques is that the client learns an active skill which he or she can apply in a variety of anxiety-arousing situations in a daily life. The client learns a technique which can be used for remediation or prevention. Because of their generalizability and potential for prevention, coping skills training programs are purported to be superior to traditional anxiety reduction techniques (Barrios, 1978; Suinn & Richardson, 1971).

A popular technique is cue-controlled relaxation. The research literature on cue-controlled relaxation indicates that the technique is effective in alleviating test anxiety and public speaking anxiety. Comparative outcome studies indicate that the cue-controlled relaxation technique is as effective as desensitization in reducing self-report measures of test anxiety (Russell, Miller, & June, 1975).

Two conflicting interpretations of the effects of cue-controlled relaxation have been offered. Brady (1973) attributes the effects to the eliciting properties of the cue; whereas Meichenbaum (1973) contends that the cue-word, "calm" or "relax", may function to replace neurotic unadaptive self-verbalization rather than serve to elicit relaxation. One purpose of the present study was to examine these two conflicting views by comparing a traditional cue-controlled relaxation procedure with one which used a previously neutral self-verbalization, that is, a nonsense syllable. The cognitive position clearly predicts that the latter treatment should not be as effective in reducing anxiety.

Another technique used to reduce anxiety is applied relaxation. There are a number of applied relaxation techniques. The procedures are related because all of them primarily focus on relaxation as a coping or self-control procedure. The training procedures differ in the extent to which they utilize various relaxation induction techniques. Empirical studies have found applied relaxation to be effective in reducing such anxiety reactions as test, public speaking, interview, communication, and

free-floating anxiety. In group studies which included no-treatment and/or attention-placebo controls, applied relaxation was found to be more effective than either of these conditions. Some evidence has also been obtained for the technique's superiority over traditional desensitization with respect to treatment and generalized effects. There has not, however, been an investigation which compared the effects of applied relaxation with those produced by cue-controlled relaxation. The primary purpose of the present investigation was to provide for such a comparison.

Thus, the present study examined the relative effectiveness of applied relaxation, "cognitive" cue-controlled relaxation, and "conditioned" cue-controlled relaxation in the reduction of test anxiety. Pre and post treatment scores on several self-report and performance measures of test anxiety were used to evaluate the efficacy of each technique.

Over 1000 students enrolled in psychology courses at Nicholls State University completed the Suinn Test Anxiety Behavior Scale (Suinn, 1969). Female students scoring in the upper 15% of the distribution were contacted by letter and invited to participate in the study. Twenty-one (21) students completed the pre-test, however, 3 withdrew from the investigation. The attrition resulted in the following numbers for each condition: 6 in the "cognitive" cue-controlled relaxation, 5 in the "conditioned" cue-controlled relaxation, and 7 in the applied relaxation. The subjects were all undergraduates and ranged in age from 17 to 50.

Prior to treatment, the rationale and procedure of each condition was explained. Subjects were informed of the effects of anxiety on performance and the potential of relaxation techniques in reducing anxiety. Relaxation training and treatments lasted a total of 6 weeks. During the first 3 weeks the subjects underwent relaxation training as a group to learn the procedure. It was recommended they practice three times a week individually for the entire 6 weeks. A printed sheet was provided to facilitate this "home practice". Individual treatment was administered, following the group sessions, weekly for 3 weeks with each treatment lasting approximately 30 minutes. Each of the sessions was conducted in a sound proof and dimly lit room. A tape recording of the relaxation procedure was used during each session⁵ to provide similar conditions

for all 3 groups (Donner & Guernsey, 1969; Geer & Hurst, 1976; Utz, 1978). Therapy sessions were conducted by three psychologists and two undergraduate assistants.

"Cognitive" cue-controlled relaxation. The aim of this treatment procedure was to enable the client to achieve relaxation by means of a self-produced coping cue-word. The treatment consisted of two phases: first, subjects were trained in progressive muscle relaxation, and second, the relaxed state was paired with a self-produced coping cue-word (i.e., calm). Following relaxation induction, the relaxed subjects were instructed to attend to their breathing and to repeat the cue-word silently each time they exhaled.

The therapist repeated the word in synchrony with the subject five times, and the subject then continued for 15 additional pairings. Following a 60-second interval in which the subject attended to general feelings of relaxation, a second set of 20 cue-word pairings was carried out. The subject was instructed to practice both the relaxation and cue-word procedure. It was explained to the subject that regular practice of the relaxation exercise and the cue-word pairings would lead to the development of a relaxation response which could be used to counter anxiety during test taking.

"Conditioned" cue-controlled relaxation. Subjects in this condition received the same treatment as those in the "cognitive" cue-controlled relaxation except that the cue-word was the nonsense syllable "veg".

Applied relaxation. Subjects in this group were informed that the purpose of the training procedure was to provide them with a coping skill which they could actively employ in relaxing away tension experienced in test taking situations. As was the case with the cue-controlled relaxation groups, relaxation training was carried out during each session. A cue-word however, was not paired with the relaxed state.

Pretesting was conducted 1 week prior to treatment, and posttesting within 1 week after subjects had completed treatment. The pre- and posttest were administered to subjects as a group within a regular classroom setting in order to create an examination atmosphere.

The assessment procedure was as follows: first, each subject completed the STABS (Suinn, 1969), and a modified version of the S-R Inventory of Anxiousness (Endler, Hunt, & Rosenstien, 1962). This version required the subjects to rate 20 aspects of their reactions to 9 test situations. Subjects then recieved a set of anxiety elevating instructions informing them that they were about to take some tests which measured intellectual abilities. The instructions stated that performance on these tests would provide a very good measure of general intelligence, and that test scores have been found to correlate highly with college grades. Prior to the administration of the tests, subjects were assessed on two measures of anxiety. The anxiety measures were an abbreviated, 11 item, form of the Anxiety Differential (Husek & Alexander, 1963) and the Affect Adjective Check List (Zuckerman, 1960).

The 3 performance measures used to assess change were the digit symbol and the digit span subtests of the Wechsler Adult Intelligence Scale, and also the Wonderlic Personnel Test (Wonderlic, 1977). The posttest battery was identical to that of the pretest's except that a parallel form of the Wonderlic Personnel Test was used.

RESULTS

Analyses of covariance were performed on the posttest scores for each of the dependent variables. Pretest scores served as the covariate for each of the analyses. The series of analyses of covariance yielded nonsignificant F ratios for all 7 of the dependent variables.

In spite of these nonsignificant differences for the between group analyses we felt it would be worth wild to explore the data by means of within groups statistical analyses for each dependent variable. Table 1 presents the treatment means and summarizes the within-group statistical analyses. Since the pre and posttest means for each treatment condition were based upon the same individuals, t tests of significance of the difference between correlated means were computed. As indicated in Table 1 significant within-group changes on four, two, and three of the dependent measures were obtained for applied relaxation, cognitive cue-

controlled relaxation, and conditioned cue-controlled relaxation relaxation respectively.

CONCLUSION

The purpose of the present investigation was twofold: (1) to provide a test of the cognitive and conditioning conceptualizations of the effects produced by cue-controlled relaxation; and (2) more importantly, to determine the relative effectiveness of applied relaxation and cue-controlled relaxation in reducing test anxiety.

The data suggested that all 3 treatments produced essentially equivalent effects on both self-report and behavioral measures of test anxiety. Thus, contrary to prediction based on the cognitive model of cue-controlled relaxation, the use of a task irrelevant cue-word such as a nonsense syllable did not appear to reduce the efficacy of the cue-controlled relaxation procedure.

Although the between-group analyses revealed no significant differences among the 3 relaxation based treatments on any of the self report or behavioral dependent variables, the within group analyses found that the applied relaxation procedure produced the greatest number of statistically significant pre-post changes. It appears relaxation training and self control instructions are sufficient to result in effects similar to those obtained with cue-controlled relaxation.

At this point, we would advocate the use of Applied Relaxation because of its efficiency in time and energy. But, it is apparent that future research in the area of coping skills training is needed.

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Table 1
Treatment Means and t Values for Within Group Changes

Variable	Treatment Conditions								
	Applied Relaxation			Cognitive Cue- Controlled Relaxation			Conditioned Cue- Controlled Relaxation		
	M	t	p<	M	t	p<	M	t	p<
Wonderlic									
Pre	19.71	-0.08	.50	18.00	-.57	.30	24.20	-.20	.45
Post	19.85			18.83			24.40		
Digit Symbol									
Pre	56.14	-3.04	.025	67.33	-3.73	.005	64.00	-2.9	.025
Post	64.71			73.00			71.60		
Digit Span									
Pre	12.42	-.91	.15	12.66	.70	.30	14.20	.39	.40
Post	12.85			12.16			14.00		
AD									
Pre	42.42	2.09	.05	53.50	1.09	.20	47.40	1.32	.15
Post	34.42			42.66			41.40		
AACL									
Pre	9.28	1.67	.10	12.83	.68	.30	10.0	3.58	.025
Post	6.00			9.50			5.8		
SR									
Pre	518.00	9.65	.005	536.00	1.59	.10	546.80	2.48	.05
Post	398.57			431.66			466.00		
STAES									
Pre	174.00	2.14	.05	180.33	2.34	.05	177.40	2.00	.10
Post	150.57			140.83			156.60		